

## REMARKS

### 35 U.S.C. § 112 Rejections

1. Regarding the indefiniteness rejection directed to claim 63, Applicant respectfully asks that it be withdrawn. Applicant reports that *a double crosslinking agent* is *a single* compound that has two Si-H functional groups that can hydrosilicate the terminal unsaturated crosslinkable moieties, which are preferably alkene groups.<sup>1</sup> Similarly, *a multiple crosslinking agent* is *a single* compound that has more than two Si-H functional groups that can hydrosilicate alkene groups.<sup>2</sup> Applicant points out that this explanation corrects the Examiner's mistaken belief that claim 63 is directed to more than a single compound that is a crosslinking agent. On the contrary, the crosslinking element of claim 63 is directed to a single compound having two or more Si-H functional groups.

2. Regarding the indefiniteness rejection directed to claim 64, Applicant respectfully asks that it be withdrawn. As a basis for withdrawing the rejection, Applicant asks that the Examiner reassess Applicant's claim language of "about 1" in view of the following authority:

"... That some claim language may not be precise, however, does not automatically render a claim invalid. When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed, in light of the specification."<sup>3</sup>

Applicants assert that the "about 1 carbon atom" is *not* indefinite claim language because in accordance with the above authority, one of ordinary skill in the art would understand what is being claimed, in light of the specification. For example, formula I is disclosed and the specification independently defines both R<sub>1</sub> and R<sub>2</sub> as "being selected from hydrogen or organic groups having from about 1 to about 30 atoms."<sup>4</sup> The specification therefore accounts for when

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1 Page 9 of the specification, lines 27-29.

2 Pages 9 and 10 of the specification , lines 29-1.

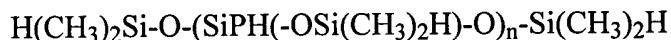
3 *Seattle box Co., v. Industrial Crating and Packaging, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984).

4 page 10 of the specification, lines 1-6.

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either R<sub>1</sub> or R<sub>2</sub> does not have carbon atoms- in such a case, R<sub>1</sub> or R<sub>2</sub> is respectively hydrogen. Further, one of ordinary skill in the art appreciates that an organic group has at least one carbon atom because organic chemistry is the study of the compounds of carbon.<sup>5</sup>

3. Regarding the indefiniteness rejection directed to claim 65, Applicant respectfully asks that it be withdrawn in light of the respective amendments. As allowed for by MPEP chapter 2163.07 entitled “*II. Obvious Errors*”, claim 65 has been amended by amending the specific formula from:



to



Note that this amendment clarifies the phenyl moiety by changing its description from “PH” to “Ph.” This same amendment has been made in the specification, in the paragraph beginning at page 10, line 24.

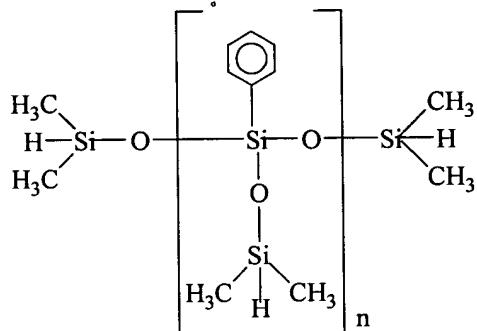
The Examiner is correct in asserting that “PH” is an unrecognized moiety in the art, where in fact Ph is the recognized manner for describing a phenyl moiety. MPEP chapter 2163.07 states that an amendment to correct an obvious error does not constitute new matter where one skilled in the art would not only recognize the existence of error in the specification, but also the appropriate correction.<sup>6</sup> Applicant asserts that this error would be recognized by one skilled in the art (in the same manner that the Examiner identified the error), and that one skilled in the art would recognize that replacing PH with Ph is the appropriate correction for describing a phenyl moiety. For clarification, the chemical structure of the subject multiple cross-linking agent is presented:

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<sup>5</sup> *Organic Chemistry* (Fifth Edition) by Morrison and Boyd, pg. 1.

<sup>6</sup> *In re Oda*, 443 F.2d 1200, 170 USPQ 268 (CCPA 1971).

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4. Regarding the rejection directed to claim 65 and the claim language of "about 1," Applicants adopt the same position regarding this rejection as was presented with respect to claim 64 and its use of "about 1." Namely that the "about 1 carbon atom" is *not* indefinite claim language because one of ordinary skill in the art would understand what is being claimed, in light of the specification and that one of ordinary skill in the art appreciates that an organic group has at least one carbon atom because organic chemistry is the study of the compounds of carbon. Therefore, Applicants respectfully ask that the rejection be withdrawn.

5. Claims 1-55 have been cancelled.

6. Regarding claims 56-70, we have enclosed a terminal disclaimer in compliance with 37 C.F.R. 1.321(b) and (c) in order to overcome the obviousness-type double-patenting rejection.

35 U.S.C. § 102 and § 103 Rejections

7. The Examiner has rejected claims 56-68 and 70 as anticipated by, or in the alternative as obvious over Dvornic et al. (US Patent No. 5,902,863).

In establishing a basis for anticipation, the Examiner has asserted that the '863 patent teaches dendrimers that are intermolecularly crosslinked and *intramolecularly* crosslinked.<sup>7</sup> But Applicant addresses this rejection by asserting that the '863 patent does not provide *any* teaching of intramolecularly-crosslinked dendrimers. In fact, the '863 patent only teaches that the outer surface of the disclosed dendrimers have reactive organo-silicon functional

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<sup>7</sup> Page 6 of the Office Action.

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groups.<sup>8</sup> And *not* an intramolecularly-crosslinked peripheral surface. Further, not only is there no teaching that the '863 dendrimers are intramolecularly crosslinked, but there is no specific teaching that it is the *peripheral surface* of the dendrimer that is intramolecularly crosslinked. Applicant therefore maintains that each and every element of the claimed invention is not taught by the '863 patent, and that therefore there can be no anticipation. Applicant respectfully asks that these rejections be withdrawn.

The Examiner has further made the general assertion that "dendrimers are often referred to as being hollow despite the presence of interior generations," and that "the dendrimers of Dvornic can reasonably be said to meet Applicant's limitation of 'hollow'." Applicant isn't familiar with any such limitation in the claims, and therefore finds these assertions to be irrelevant to the patentability of the pending claims.

As mentioned above, the Examiner has further rejected claims 56-68 and 70 as being obvious over the '863 patent. Applicant responds by reporting that the '863 patent is directed to dendrimer-based networks. And the '863 teachings are directed to these networks. Applicant's invention, on the other hand, is not directed to a network at all. Further, there is no suggestion of an intramolecularly-crosslinked dendritic peripheral surface in the '863 patent. Since Applicant can find no basis for the Examiner to give a rejection based on obviousness, Applicant again asks that the rejection be withdrawn.

8. The Examiner has rejected claims 59-69 as anticipated by or, in the alternative, as obvious over Tomalia (US Patent No. 4,737,550).

Applicant responds to the anticipation rejection by reporting that Tomalia does not teach an intramolecularly crosslinked dendritic peripheral surface. In fact, Applicant reports that Tomalia doesn't teach "at least one crosslinkable moiety bonded to the terminal groups of each dendritic branch via a labile bond." Further, Tomalia doesn't teach "wherein the crosslinkable moieties of adjacent dendritic branches are intramolecularly cross-linked to form an intramolecularly crosslinked peripheral surface." In contrast, Tomalia teaches bridged dense star polymers wherein the bridged dense star polymer has a "linear," "radically

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<sup>8</sup> Col. 5, lines 31-32 and col. 7, lines 12-13 of the '864 patent.

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expanding,” “rod-like,” or “macrocyclic” construction.<sup>9</sup> And these teachings are distinct from the claimed invention. Applicant respectfully asks that these rejections be withdrawn.

Further, it is appreciated that all of the ‘550 constructions are *interdendrimer* or *inter-dense star polymers*. That is, the bridges are between distinct dendrimers or dense star polymers. This teaching in no way reflects a dendrimer having an *intramolecularly* crosslinked peripheral surface. Again, the anticipation rejection should therefore be removed because all of the claimed elements aren’t disclosed.

The Examiner has also rejected claims 56-69 as being obvious over Tomalia. Applicant has already reported that Tomalia teaches bridged dense star polymers having *interdendrimer* connections or *inter* dense star polymer connections. And since Tomalia is directed to such construction, as opposed to the crosslinked *intramolecular* dendritic constructions of the present invention, Applicant doesn’t appreciate how there can be any basis for an obviousness rejection. In fact, an *intramolecular* peripheral surface isn’t even related to Tomalia’s teachings of bridges between distinct dendrimers. Applicant can find no logical basis or motivation for Tomalia teachings, and further Applicant believes that even if Tomalia were modified, the claimed invention would still not be disclosed. The rejection should therefore be withdrawn.

9. The Examiner has rejected claims 56-68 as being anticipated by or obvious over Dvornic et al. (US Patent No. 5,739,218).

Among the reasons that the Examiner lists as providing a basis for rejection, the Examiner states that, “while admittedly the amount of surface crosslinking may not be very great in Example 1, the instant claims are not limited as to how much surface crosslinking takes place.” Applicants disagree, an element of each of the rejected claims is “at least one crosslinkable moiety bonded to the terminal groups of each dendritic branch via a labile bond; wherein the crosslinkable moieties of adjacent dendritic branches are *intramolecularly* crosslinked to form a dendrimer having an *intramolecularly* crosslinked periphery surface.”<sup>10</sup> This claim language makes it clear that each dendritic branch has a crosslinkable moiety, and that adjacent crosslinkable moieties are *intramolecularly* crosslinked. Therefore all of the claimed dendritic

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9 Col. 18 and 19, lines 25-41 of the ‘550 patent.

10 Claim 56

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branches are *intramolecularly* crosslinked, and not just an admittedly “not very great amount” of crosslinking takes place as argued by the Examiner.

Additionally, it appears that the Examiner is adopting the position that the alleged *intramolecular* crosslinking is inherent in the ‘218 disclosure. This stems from the Examiner’s use of the phrase “it would reasonably appear that some cross-linking would also take place by this route,” in rejecting the subject claims. By making this statement, the Examiner is acknowledging that an *intramolecular* cross-linked periphery surface is not specifically disclosed. Applicant responds by citing the authority that “To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must *make clear* that the missing descriptive matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill.”<sup>11</sup> And, “Inherency, however may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.”<sup>12</sup>

The Examiner is suggesting that the ‘218 reference provides the possibility of *intramolecularly* crosslinked dendritic branches— possibility of *intramolecularly* crosslinked dendritic branches or that it may be probable. Use of language “it would reasonable appear” is the basis for Applicant’s assertion. And this is not a valid basis for an anticipation rejection – even based on inherency. Therefore, the anticipation rejection should be removed because the claimed elements are not disclosed by Dvornic et al.

As for the Examiner’s obviousness rejection, Dvornic et al. Is directed to organosilicon surface modifications of various types of dendrimers.<sup>13</sup> Neither would it be obvious to create a crosslinked peripheral surface nor is their motivation to do so. This is because the organosilicon surface is disclosed as being useful for its lypophilicity, and because it is useful for its lypophilicity there is no motivation for its modification.

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11 *Continental Can Co. USA v. Monsanto Co.*, 20 USPQ 2d 1746, 1749 (Fed. Cir. 1991)

12 *In re Oelrich*, 212 USPQ 323, 326 (C.C.P.A. 1981) (quoting *Hansgirg v. Kemmer*, 40 USPQ 665, 667 (C.C.P.A. 1939)

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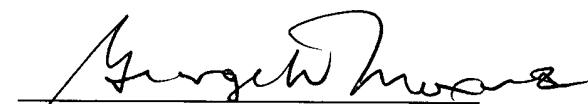
Amendment to the Specification

1. Applicants have amended the compound of the paragraph beginning at page 10, line 24 to read “. . .(CH<sub>3</sub>)<sub>3</sub>Si-O-(Si(CH<sub>3</sub>)(H)-O)<sub>m</sub>-(Si(CH<sub>3</sub>)(C<sub>8</sub>H<sub>17</sub>)-O)<sub>n</sub>-Si(CH<sub>3</sub>)<sub>3</sub>. . .”, instead of “. . .(CH<sub>3</sub>)<sub>3</sub>Si-O-(SiH<sub>3</sub>H-O)<sub>m</sub>-(SiCH<sub>3</sub>(C<sub>8</sub>H<sub>17</sub>)-O)<sub>n</sub>-Si(CH<sub>3</sub>)<sub>3</sub> . . .”. Support for this amendment is found in either claim 65 of the currently amended claims or claim 13 of the originally filed claims.

2. Applicants have also amended the paragraph beginning at page 10, line 24 to read “. . .and H<sub>2</sub>R<sup>3</sup>Si(SiR<sup>3</sup>H)<sub>n</sub>-SiR<sup>3</sup>H<sub>2</sub>; wherein R<sup>3</sup> is selected from alkyl and aryl groups having from about 1 to about 15 carbon atoms. . .” instead of “. . .and H<sub>2</sub>R<sup>3</sup>Si(SiR<sup>3</sup>H)<sub>n</sub>-SiR<sup>3</sup>H<sub>2</sub>; wherein R<sup>3</sup> is selected from alkyl and aryl groups having from about 1 to about carbon atoms. . .”. Support for this amendment is found in either claim 65 of the currently amended claims or claim 27 of the originally filed claims.

Applicants believe that the application is now in condition for allowance and request that the Examiner issue a notice of Allowance.

Respectfully submitted,

  
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13 Col. 1, line 18-25 of '218.